

**ABSTRACT**

A method for separating a two-phase mixture of two immiscible fluids into a first fluid and a second fluid and simultaneously separating at least one of the first and second fluid in a fraction with high density and a fraction with low density where the fractions are miscible comprising the steps of a separation tray

subjecting the two-phase mixture to a first gravity separation and withdrawing separately the first and a second fluid, and

subjecting at least one of the first and second fluid to a second gravity separation, which is a float separation and separating at least one of the first and second fluid into a light and a heavy fraction by means of a float having a density between the densities of the two fluid fractions.